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⑯ A cosmetic composition.

⑯ A cosmetic composition comprises a compound capable  
of generating heat to raise the temperature of the composition  
when the compound is brought into contact with water.

The cosmetic composition is used for hair shampoo, hair  
rinse, hair lotion, hair treatment, hand cleaner, hand lotion,  
cleansing lotion and moisturizing cream.

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1      TITLE OF THE INVENTION

A Cosmetic Composition

1      BACKGROUND OF THE INVENTION5      Field of the Invention

This invention relates to a cosmetic composition. More particularly, the present invention relates to a cosmetic composition which generates adequate heat when it is used.

Description of the Prior Art

10     As cosmetic compositions which are usable for hair washing such as shampoo or rinse, for hair such as rinse (conditioner), lotion or hair treatment, and for skin such as hand cleaner or hand cream are cited, and they contain soap and surface active agents as main components, and also 15     conditioners such as oily components, perfumes, dyes, thickeners or cationated celluloses, protein derivatives, lanolin derivatives and extracts of natural substance.

20     Further conditioning cosmetic compositions for hair may contain oily components such as vegetable oil, fatty acid ester, higher alcohol, etc., surface active agents, oil soluble poly(alkylene oxides) derivatives, lanolin derivatives, vegetable components, etc., as main components and also perfumes, dyes, thickeners, etc.

25     A cosmetic composition shows its finishing effect when it is used with water, and its cleansing effect and

1 finishing effect are enhanced and more comfortable hot feeling  
is given when it is used with hot water than when it is used  
with cold water. But it cannot be said that hot water is  
always arranged.

5 As conditioning cosmetic compositions for hair, hair  
washing type rinse, lotion, treatment, etc. may be cited,  
and their cosmetic effect are shown when they are used with  
water. In this case, finishing effect is better and more  
comfortable hot feeling is given when hot water is used rather  
10 than when cold water is used. But, it cannot be said that  
hot water is always arranged.

15 The inventors of this patent repeated investigations  
under above circumstance with the object to get a cosmetic  
composition showing both excellent cleansing effect and  
excellent finishing effect even if it was used with cold water  
and then recognized that the object could be easily achieved  
if such substance that reacts with water to generate heat is  
used in cosmetic. Therefore, this invention is based on this  
recognition.

20

#### SUMMARY OF THE INVENTION

It is an object of the present invention to provide  
a cosmetic composition showing excellent cleansing effect  
even if it was used with cold water.

25

It is another object of the present invention to

1 provide a cosmetic composition showing excellent finishing effect even if it was used with cold water.

5 It is a further object of the present invention to provide a cosmetic composition for hair showing excellent finishing effect even if cold water was used.

10 According to one aspect of the present invention, there is provided a cosmetic composition which comprises a compound capable of generating heat to raise the temperature of the composition when the compound is brought into contact with water.

15 According to another aspect of the present invention, there is provided a cosmetic composition comprising a member selected from the group consisting of poly(ethylene oxides), poly(propylene oxides) and derivatives thereof and a member of alkylene glycols having 2 to 9 carbon atoms are contained as the compound.

#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

20 A feature of the present invention is to contain such substance which generates heat when it is contacted with water in a cosmetic composition such as hair shampoo, hair rinse, lotion, hair treatment, hand cleaner, etc.

25 The expression "cosmetic composition" as used in the present invention comprehends a cosmetic composition usable for hair washing, hair treatment, skin, etc. as mentioned above,

1 and the cosmetic composition contains the same components as  
a conventional general composition. That is, the composition  
contains soap and/or surface active agents as main components,  
also perfume, dye, thickner, conditioner, etc. but hydroxy-  
5 propyl cellulose is particularly used in the present invention  
suitably as a thickner.

The present invention comprises containing substance  
which generates heat of dilution, heat of dissolution, or  
heat of reaction when it is contacted with water. If the  
10 quantity of generated heat is too small, the merit of the  
present invention cannot be achieved, and if the quantity of  
generated heat is too large, the composition becomes dangerous  
and cannot be used safely on the contrary. Generally, such  
substance is used which raise the temperature thereof up to  
15 three or more degrees, preferably up to five or more degrees  
and further more preferably up to eight or more degrees when  
the said composition is mixed with cold water in an equal  
weight ratio. And such substance which raises the temperature  
thereof up to twenty or more degrees and particularly, up  
20 to thirty or more degrees is not preferable in view of  
safety.

Examples of the substances used in the present  
invention which generate heat when it is contacted with water  
are as follows. Alkyl alcohols having 2 to 4 carbon atoms  
25 such as ethanol, isopropyl alcohol and the like; alkylene

1      glycols having 2 to 9 carbon atoms such as ethylene glycol,  
2      propylene glycol, butylene glycol, pentylene glycol, hexylene  
3      glycol and the like; aliphatic triols such as glycerol;  
4      di(alkylene glycols) and derivatives thereof having 2 to 4  
5      carbon atoms in the alkylene portion such as di(ethylene  
6      glycol), di(propylene glycol), di(ethylene glycol) mono methyl  
7      ether, and di(ethylene glycol) mono ethyl ether; and poly  
8      (alkylene oxides) (also called poly(oxyalkylene), poly(alkylene  
9      glycol), or polyether glycol) and derivatives thereof having 2  
10     to 4 carbon atoms in the alkylene portion such as poly(ethylene  
11     glycols), poly(propylene glycols), block or random copolymers  
12     of ethylene oxide and propylene oxide, and others of poly  
13     (alkylene oxides) having 1 to 5 carbon atoms in the ether  
14     portion, for example, butyl mono ethers of copolymers of  
15     ethylene oxide and propylene oxide, butyl mono ethers of  
16     poly(ethylene oxides), poly(ethylene oxide-propylene oxide)  
17     adducts of glycerol, and poly(propylene oxides) adducts of  
18     glycerol.

19     As said alkyl alcohols, it is preferable to use  
20     ethanol or isopropyl alcohol.

21     As alkylene glycols having 2 to 9 carbon atoms, alkylene  
22     glycol having 6 or less carbon atoms per molecule can be  
23     preferably used. But, alkylene glycol having 10 or more carbon  
24     atoms per molecule cannot be used in the present invention.  
25     It is more preferable to use ethylene glycol, propylene glycol,

1 or hexylene glycol.

As said aliphatic triols, it is preferable to use glycerol.

5 As said di(alkylene glycols), it is preferable to use di(ethylene glycol) or di(propylene glycol). As said derivatives thereof, it is preferable to use di(ethylene glycol) mono methyl ether or di(ethylene glycol) mono ethyl ether.

10 As said poly(alkylene oxides), it is preferable to use poly(ethylene glycol)-200, -300, -400, and -600 (said figures represent average molecular weight of the poly(ethylene glycol)), poly(propylene glycols) having 200 to 1200 of average molecular weight or block copolymers of ethylene oxide and propylene oxide.

15 As said derivatives of said poly(alkylene oxides), it is preferable to use mono butyl ethers of copolymers of ethylene oxide and propylene oxide, poly(ethylene oxide - propylene oxide) adducts of glycerol or poly(propylene oxides) adducts of glycerol.

20 The present inventors studies widely with the object to obtain such conditioning cosmetic composition for hair showing excellent finishing effect even if cold water was used, and, as the result, they realized a method to use polyalkylene oxides or their derivatives which generated heat when they were contacted with water.

25 However, poly(alkylene oxides) or derivatives thereof

1 change to oil soluble from water soluble as the number of  
carbon atoms in alkylene portion increase, and so poly(ethylene  
oxides), poly(propylene oxides) or derivatives thereof only  
can actually be used among poly(alkylene oxides) or their  
5 derivatives. On the other hand, since a conditioning cosmetic  
composition for hair contains oily components such as vegetable  
oil, mineral oil, fatty acid ester, higher alcohol, oily  
poly(alkylene oxides) derivatives, that are, for examples,  
poly(propylene oxides) butylether, poly(propylene glycols), etc.,  
10 such inconvenience will be resulted that the oily components  
become insoluble if water soluble poly(ethylene oxides),  
poly(propylene oxides) or derivatives thereof are used as heat  
generating components.

15 The inventors of this invention studied further about  
this problem and recognized unexpectedly that this problem  
could be solved easily by using poly(ethylene oxides), poly  
(propylene oxides) or derivatives thereof along with alkylene  
glycol having 2 to 9 carbon atoms, which make oil soluble and  
they completed the present invention.

20 The substance which generates heat is generally  
employed in an amount more than 50% by weight and preferably  
in an amount more than 60% by weight of the total cosmetic  
composition. If the ratio of the said substance in the  
cosmetic composition increases, accordingly the ratio of  
25 cleaner decreases, and, generally, the said substance is

1 employed in an amount under 95% by weight, further preferably  
in an amount under 80% by weight, and more preferably in an  
amount of 70% by weight or more based on the total cosmetic  
composition. If the amount is less than 50% by weight,  
5 satisfactory heat generating effect is not achieved.

It is preferable that the cosmetic composition for  
hair according to the present invention contains both poly  
(ethylene oxides), poly(propylene oxides) or derivatives  
thereof which generate heat on contact with water and also  
10 alkylene glycol having 2 to 9 carbon atoms.

In case of the cosmetic composition for hair, an amount  
of poly(ethylene oxides), poly(propylene oxides) or derivatives  
thereof used in this invention is generally 50% by weight or  
more, preferably, 60% by weight or more, and further preferably  
15 70% by weight or more of the total cosmetic composition. If  
the amount is less than 50% by weight, satisfactory heat  
generating effect cannot be achieved. If the amount is too  
large, the ratio of the essential cosmetic component decreases,  
and, generally, they are employed in an amount 90% by weight  
20 or less and preferably in an amount 80% by weight or less of  
the said cosmetic composition. Alkylene glycol having 2 to 9  
carbon atoms is generally employed in 1.0 to 0.1 weight ratio  
and preferably in 0.5 to 0.25 weight ratio to poly(ethylene  
oxides), poly(propylene oxides) or derivatives thereof. Also,  
25 hydroxypropyl cellulose is preferably used as a thickner

1 in the cosmetic composition for hair of the present invention.

2       The cosmetic composition of the present invention can  
3       be used to be mixed in a suitable ratio with cold water, and  
4       the heat generated by mixing can be controlled by increase or  
5       decrease in quantity of water. Foaming and permeability of  
6       the cleaner are improved and more excellent cleaning effect  
7       can be achieved by generation of heat even if cold water is  
8       used. The composition of this invention can be used suitably  
9       as a composition for hair since the composition can achieve  
10       particularly well balanced oil/water finishes. And also, even  
11       though a hair treatment on the market requires an operation of  
12       hair steaming with a towel dipped in hot water, the hair treat-  
13       ment of the present invention gives comfortable hot feeling  
14       effect and steaming effect can be achieved since the hair  
15       treatment generates heat and temperature increase can be  
16       achieved by mixing with water existing between hairs after  
17       shampoo.

18       The present invention will be described more concretely  
19       by examples, but the present invention shall not be limited  
20       to these examples unless exceeding the essential summary of  
21       the present invention. In the following examples, all the  
22       terms "part" denote part by weight, and every chemicals used in  
23       the examples meets the Standard of the Raw Material for the  
24       Cosmetic Composition unless especially stated.

25

1      EXAMPLE 1

Poly(ethylene glycol)-400 (64.5 parts), 10 parts of monooleic acid poly(oxyethylene) sorbitan (20 mol of ethylene oxide), 15 parts of 2-alkyl-N-carboxyethyl-N-hydroxyethyl imidazolium betaine (Softazolin SF supplied by Kawaken-Fine Chemicals), 5 parts of coconut fatty acid diethanolamide, 5 parts of propylene glycol and 0.5 parts of perfume were uniformly mixed with agitation. An adequate quantity of the hair shampoo thus obtained was taken in a hand and then applied directly or after being diluted with water in an amount less than approximately one half quantity of the hair shampoo to hair and head skin which had been wetted with cold water or hot water to conduct the shampooing: As a result, comfortable hot feeling effect was achieved, and finishing effect was good.

15      EXAMPLE 2

Poly(ethylene glycol)-400 (59.0 parts), 3.0 parts of isopropyl myristate, 0.05 parts of L-menthol, 5.0 parts of hexyl decanol, 1.5 parts of hydroxypropyl cellulose, 1.0 part of hydrolyzed animal protein derivative (Promois E 118D supplied by Seiwa Kasei Co.), 2.0 parts of cetyl trimethyl ammonium chloride (Lepon TM 16 supplied by Sanyo Kasei Co.) and 13.0 parts of hexylene glycol were mixed with agitation. To the resulting mixture was added a solution of 0.005 parts of Orange 205 (dye approved by law) dissolved in 1.0 part of

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1 water. Then, a solution of 1.0 part of distearyl dimethyl ammonium chloride dissolved in 12.9 parts of the above mentioned hexylene glycol with heating at 60°C was further added to obtain a hair treatment.

5 An adequate quantity of the hair treatment was taken in a hand and diluted with cold water in an amount less than about one half quantity of the hair treatment. The diluted hair treatment was then applied to hair which has been rinsed with the shampoo obtained in Example 1 and to head skin so as 10 to rub the hair treatment on them. As a result, hot feeling was given and finishing effect was good.

EXAMPLE 3

15 Glycerol (30.0 parts), 55.0 parts of propylene glycol, 5.0 parts of 2-hexyl decanol, 5.0 parts of ethanol (99%), 1.0 part of cetyl acetate, 2.0 parts of silicone oil (Toray Silicone SH 3771 oil supplied by Toray Silicone Co.), 2.0 parts of hydrolyzed animal protein derivative (Promoise E 118D supplied by Seiwa Kasei Co.), 0.0001 part of dyestuff and 0.2 parts of perfume were successively mixed uniformly 20 to obtain a hand lotion in a liquid form.

An adequate quantity of the hand lotion was taken in a hand, mixed with water in substantially the same amount as that of the hand lotion uniformly and spread over the hand. As a result, comfortable hot feeling was given due to heat generation upon hydration of the lotion. Further, circulation

12

1 of the blood was facilitated and simultaneously good balance  
of the moisture content and oil content in the skin was  
achieved so that the hand skin became smooth. Also, when  
the propylene glycol was replaced by ethanol, similar results  
5 were obtained.

EXAMPLE 4

Poly(ethylene glycol)-300 (30.0 parts), 30.0 parts  
of poly(ethylene glycol)-400, 15.0 parts of poly(oxyethylene)  
10 (20) monooleate, 15.0 parts of 2-alkyl-N-carboxyethyl-N-  
hydroxyethyl imidazolium betain (Softazolin SF supplied by  
Kawaken-Fine Chemicals), 5.0 parts of coconut fatty acid  
diethanolamide, 0.5 parts of perfume, 0.5 parts of white  
pigment (Natural Pearlessence AH-1 supplied by Kakuhachi Co.,  
Ltd.) and 4.0 parts of poly(oxyethylene)-poly(oxypropylene)  
15 block polymer (Pluronic L 61 supplied by BASF) were suc-  
cessively mixed uniformly to obtain a liquid hand soap.

An adequate quantity of the hand soap was taken in a  
hand and mixed with cold water in about equivalent amount to  
that of the soap. The hand was then washed with the soap.  
20 As a result, owing to heat generation upon hydration of the  
soap, cold feeling due to the cold water was eliminated, and  
circulation of the blood was improved, and further the  
moisture content was well balanced so that the skin became  
smooth.

25

1      EXAMPLE 5

5      Poly(oxyethylene)-poly(oxypropylene) block polymer (10.0 parts), 56.6 parts of propylene glycol, 20.0 parts of ethanol, 5.0 parts of 2-alkyl-N-carboxyethyl-N-hydroxyethyl imidazolinium betain (Softazolin SF supplied by Kawaken-Fine Chemicals), 0.2 parts of isopropyl myristate, 0.2 parts of 2-hexyldecanol and 3.0 parts of poly(oxyethylene)(20) monooleate were successively mixed uniformly to obtain a liquid cleansing lotion.

10     An adequate quantity of the cleansing lotion was mixed with water. Then, a cut cotton was wetted with the lotion and used to wash off the make-up, and thereafter the face was washed with water. As a result, owing to heat generation upon hydration of the lotion, the activation was enhanced and the 15     cleansing effect was improved.

35      EXAMPLE 6

20     Propylene glycol (30.4 parts), 25.0 parts of ethanol, 5.0 parts of zinc chloride, 32.0 parts of poly(ethylene glycol) -300, 5.0 parts of 2-hexyl decanol, 2.0 parts of hydrolyzed animal protein derivative (Promois E 118 D supplied by Seiwa Kasei Co.), 0.1 part of purified water and 0.5 parts of perfume were successively mixed uniformly to obtain a hot shower oil in a liquid form.

25     Small portions of the product were taken in a hand, applied to and spread over skin which had been wetted after

1 shower. Thereafter, the skin was slightly showered. In this  
case, circulation of the blood was improved by heat generation  
due to hydration of the product with the moisture content on  
the skin, and non-greasy and smooth feeling was given.

5 EXAMPLE 7

10 1,3-Butylene glycol (21.2 parts), 30.0 parts of  
poly(ethylene glycol)-600 and 25.0 parts of propylene glycol  
were mixed, to which hydroxypropyl cellulose was added, and  
the mixture was further mixed with heating at 80 - 85°C.  
Under this temperature condition, ethylene glycol distearate  
was added, and the resulting mixture was then cooled to  
40 - 45°C. Further, 15.0 parts of ethanol and 3.0 parts of  
2-hexyl decanol were added. After the mixture was allowed  
to stand at room temperatures, 2.5 parts of isopropyl myristate,  
15 0.2 parts of white pigment (Natural Pearlessence AH-1 supplied  
by Kakuhashi Co., Ltd.) and 0.1 part of purified water were  
further added to the mixture and uniformly mixed to obtain a  
moisturizing cream in a paste form.

20 An adequate quantity of the cream was taken in a hand,  
applied to and spread over skin which had been previously  
wetted with water, in a manner of massage. The skin was then  
slightly rinsed with water. In this case, comfortable hot  
feeling was given, and circulation of the blood was facilitated,  
and further good balance of the moisture content and oil  
content was achieved so that the skin became smooth.

1      EXAMPLE 8

While poly(ethylene glycol)-300 (58.50 parts) and 26.45 parts of hexylene glycol were agitated in a batch, 1.50 parts of hydroxypropyl cellulose was added, and the mixture was then completely dissolved by heating at 80 - 85°C. 4.00 parts of cetyl trimethyl ammonium chloride (Lepon TM 16 supplied by Sanyo Kasei Co.) was added to and dissolved in the solution which was being cooled. Further, 3.00 parts of isopropyl myristate, 5.00 parts of oleyl alcohol and 1.00 part of hydrolyzed animal protein derivative (Promois E 118D supplied by Seiwa Kasei Co.) were added and made uniform. The resultant was allowed to stand at 45°C, and 0.05 parts of menthol, 0.50 parts of perfume (JN 333 supplied by Hasegawa Koryo K.K.) and an aqueous solution of an adequate amount of coloring matter (Yellow 4, Blue 1) in 0.10 part of purified water was added and made uniform to obtain a hair treatment. Trial tests of this hair treatment were conducted by standard methods applying it to ten housewives. As a result, the ten housewives observed that the hair treatment did not require steaming operation due to adequate heat generation and it was less sticky than the conventional cream type product and further showed moist and supple finishing effect.

20      EXAMPLE 9

25      A hair treatment was prepared by using the same recipe as in Example 8 except that the poly (ethylene glycol) was

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1 replaced by 50.00 parts of poly(oxyethylene)-poly(oxypropylene)  
butylether and the hexylene glycol alone was replaced by 20.00  
parts of hexylene glycol and 19.40 parts of 1,3-butylene glycol  
in combination and further the oleyl alcohol was replaced by  
5 3.00 parts of hexyl decanol. This hair treatment showed the  
same finishing effect as that obtained by the product of  
Example 8.

EXAMPLE 10

10 Poly(oxyethylene)-poly(oxypropylene) butylether (44.2  
parts), 20.0 parts of poly(ethylene glycol)-300, 25.0 parts  
of hexylene glycol, 1.0 parts of camellia oil, 3.0 parts of  
isopropyl myristate, 4.0 parts of 2-hexyl decanol, 1.2 parts  
of behenyl trimethyl ammonium chloride, 1.0 parts of hydrolyzed  
animal protein derivative (Promois E 118D supplied by Seiwa  
15 Kasei Co.), 0.5 parts of perfume and 0.1 part of purified  
water were successively mixed uniformly to obtain a hair oil  
rinse in a liquid form.

20 An adequate quantity of the hair oil rinse was applied  
to hair which had been shampooed, and uniformly spread in a  
manner of massage together with water in an about equivalent  
amount to that of the oil rinse. The hair was then washed  
with water. As a result, hydration of the oil rinse spon-  
taneously generated heat, gave comfortable hot feeling effect  
25 and improved circulation of the blood in the root of the hair.

1 WHAT WE CLAIM IS:

5 1. A cosmetic composition which comprises a compound capable of generating heat to raise the temperature of the composition when the compound is brought into contact with water.

10 2. A cosmetic composition according to Claim 1 in which the compound causes a temperature rise of not less than 3°C when the compound is mixed with an equivalent weight of water.

15 3. A cosmetic composition according to Claim 1 or 2 in which the compound is contained in an amount of 50 - 95% by weight based on the total cosmetic composition.

20 4. A cosmetic composition according to Claim 1 or 2 in which the compound is a member selected from the group consisting of alkyl alcohols having 2 to 4 carbon atoms, alkylene glycols having 2 to 9 carbon atoms in the alkylene portion, glycerol, di(alkylene glycols) and derivatives thereof having 2 to 4 carbon atoms in the alkylene portion, and poly(alkylene oxides) and derivatives thereof having 2 to 4 carbon atoms in the alkylene portion.

25 5. A cosmetic composition according to Claim 4, in which the derivatives of the di(alkylene glycols) are alkyl mono

1        ethers of the di(alkylene glycols) having 1 to 5 carbon atoms  
in the alkyl portion.

5        6.    A cosmetic composition according to Claim 4, in which  
the derivatives of the poly(alkylene oxides) are alkyl mono  
ethers of the poly(alkylene oxides) having 1 to 5 carbon atoms  
in the alkyl portion.

10       7.    A cosmetic composition according to Claim 4, in which  
the derivatives of the poly(alkylene oxides) are the poly  
(alkylene oxide) adducts of glycerol.

15       8.    A cosmetic composition according to Claim 1 or 2 in  
which both a member selected from the group consisting of poly  
(ethylene oxides), poly(propylene oxides) and derivatives  
thereof and a member of alkylene glycols having 2 to 9 carbon  
atoms are contained as the compound.

20       9.    A cosmetic composition according to Claim 8 in which  
the former member is contained in an amount of 50 - 90% by  
weight based on the total cosmetic composition and the latter  
member is contained in an amount of 0.1 - 1.0 part by weight  
per one part by weight of the former member, the sum of the  
former member and the latter member being not more than 100%.

1 10. A cosmetic composition according to Claim 8, in which  
the derivatives of the poly(ethylene oxides) and poly(propylene  
oxides) are alkyl mono ethers of the poly(ethylene oxides) and  
poly(propylene oxides) having 1 to 5 carbon atoms in the alkyl  
5 portion.

10 11. A cosmetic composition according to Claim 8, in which  
the derivatives of the poly(ethylene oxides) and poly(propylene  
oxides) are poly(ethylene oxides)-, poly(propylene oxides)-  
10 or poly(ethylene oxide and propylene oxide)- adducts of glycerol.

12. A cosmetic composition according to Claim 8 or 9  
which is used as a conditioning cosmetic composition for hair.

15 13. A cosmetic composition according to Claim 1, 2, 3 or  
4 which is used for hair shampoo, hair rinse, hair treatment  
or hand cleaner.

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㉛ A cosmetic composition.

㉜ A cosmetic composition comprises a compound capable of generating heat to raise the temperature of the composition when the compound is brought into contact with water.

The cosmetic composition is used for hair shampoo, hair rinse, hair lotion, hair treatment, hand cleaner, hand lotion, cleansing lotion and moisturizing cream.

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European Patent  
Office

EUROPEAN SEARCH REPORT

0027730

Application number

EP 80 30 3576

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	<p><u>GB - A - 1 042 529</u> (AMERICAN HOME PRODUCTS)</p> <p>* Page 1, lines 12-20 and 50-68; page 2, line 85 - page 3, line 8; page 4, lines 49-62; example 8; claims 1,6,8,15, 16,19-23 *</p> <p>---</p>	1-4, 13	A 61 K 7/00 7/48
X	<p><u>US - A - 3 250 680</u> (J. MENKART et al.)</p> <p>* Column 1, lines 8-20 and line 55 - column 2, line 12; examples 1,4,8,9,10; claims *</p> <p>---</p>	1-4, 13	TECHNICAL FIELDS SEARCHED (Int. Cl.)
X	<p><u>US - A - 3 723 324</u> (V.J. PIERCE et al.)</p> <p>* Column 2, lines 14-27; column 3, lines 7-55; example 1; claim 1 *</p> <p>---</p>	1-3, 13	A 61 K 7/00 7/09 7/15 7/155
X	<p><u>GB - A - 1 357 000</u> (BRITISH-AMERICAN TOBACCO CY)</p> <p>* Page 1, lines 40-54, 68 - page 2, line 47; page 2, lines 67-90; examples; claims *</p> <p>-----</p>	1-4, 13	CATEGORY OF CITED DOCUMENTS
			<p>X: particularly relevant</p> <p>A: technological background</p> <p>O: non-written disclosure</p> <p>P: intermediate document</p> <p>T: theory or principle underlying the invention</p> <p>E: conflicting application</p> <p>D: document cited in the application</p> <p>L: citation for other reasons</p>
			<p>X: member of the same patent family.</p> <p>corresponding document</p>
<p><input checked="" type="checkbox"/> The present search report has been drawn up for all claims</p>			
Place of search	Date of completion of the search	Examiner	
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